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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/550,066	09/21/2005	Kenji Tokuhisa	2005-1401A	2119
513 7590 05/14/2007 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021			EXAMINER KATAKAM, SUDHAKAR	
			ART UNIT 1621	PAPER NUMBER
			MAIL DATE 05/14/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/550,066	Applicant(s) TOKUHISA ET AL.	
	Examiner Sudhakar Katakam	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/21/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The examiner has considered applicant's Information Disclosure Statement of 21<sup>st</sup> September 2007. Please refer to the signed copies of the PTO-1449 forms attached herewith.

### *Claim Rejections - 35 USC § 102*

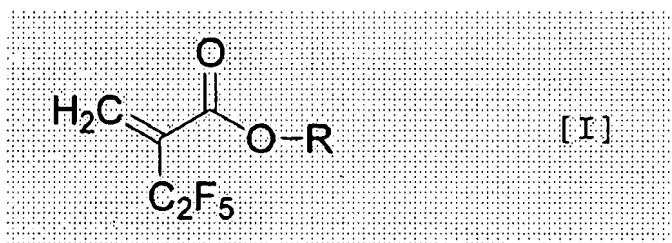
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by **Ojima et al** (US 4,581,452).

The instant claim is drawn to an alpha-pentafluoroethyl acrylic acid derivative represented by the general formula I,

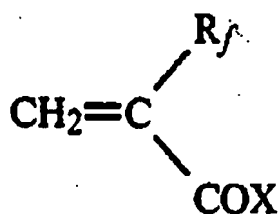


wherein R represents a hydrogen atom, a non-substituted or substituted aromatic ring, or a straight or branched alkyl group having 1 to 20 carbon(s) which may have a cyclic moiety optionally substituted with at least one substituent (halogen atom, hydroxyl

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group, straight or branched alkoxy group having 1 to 10 carbon(s) which may have a cyclic moiety, non-substituted or substituted aromatic group).

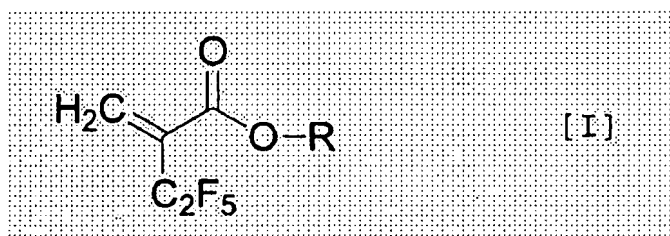
**Ojima et al** disclose the alpha-pentafluoroalkylacrylic acid represented by the general formula,



wherein X represents a halogen atom or a hydroxyl group and R<sub>f</sub> represents a perfluoroalkyl group [col. 2, lines 1-8]. **Ojima et al** also discloses a compound viz., alpha-pentafluoroethylacrylic acid [col.4, lines 24-26] and its method of preparation [col.4, lines 24-26], which comprises reacting an alpha-halo-perfluoroalkylethene, carbon monoxide, and water in presence of water [see Example 1-3 and col. 4, lines 24-26].

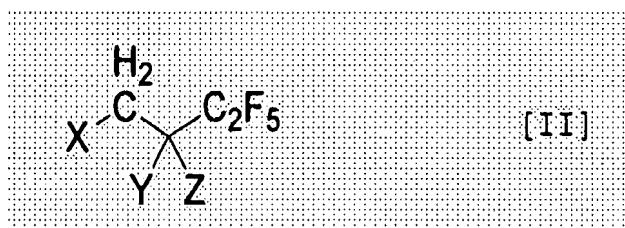
4. Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by **Ojima et al** (US 4,581,452).

The instant claim is drawn to a method of producing an alpha-pentafluoroethyl acrylic acid derivative represented by the general formula,



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wherein R represents a hydrogen atom, a non-substituted or substituted aromatic ring, or a straight or branched alkyl group having 1 to 20 carbon(s) which may have a cyclic moiety optionally substituted with at least one substituent (halogen atom, hydroxyl group, straight or branched alkoxy group having 1 to 10 carbon(s) which may have a cyclic moiety, non-substituted or substituted aromatic group), by letting a hydrocarbon halide represented by the general formula II,



wherein X represents a halogen atom or forms a bond together with X, Y represents a hydrogen atom or forms a bond together with X, and Z represents a halogen atom, react with water and/or ROH (R is defined above) in presence of a palladium catalyst, carbon monoxide, and a base

**Ojima et al** also discloses a method of producing an alpha-pentafluoroalkylacrylic acid, which comprises of reacting an alpha-halo-perfluoroalkylethene, carbon monoxide, a base, viz., triethylamine, and water in presence of palladium catalyst [see example 1-3 and col. 4, lines 24-26]. Although only the production of the perfluoromethyl and perfluoropropyl derivatives are shown in examples 1 and 3, because  $R_f$  is preferably  $C_1$ - $C_5$  perfluoroalkyl and because the end product pentafluoroalkyl acrylic acid is listed among only a few named products, the teaching of **Ojima et al** is so limited as to afford one of ordinary skill in the art an immediate view of the instant invention.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

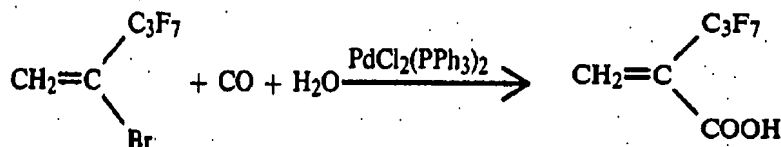
7. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ojima et al** (US 4,581,452) in view of **De Castro Loureiro Barreto Rosa et al** (US 6,103,927).

***Applicant Claims***

The instant claims are further limited to a method of producing an alpha-pentafluoroethyl acrylic acid derivative, wherein the reaction is carried out in presence of an iodine anion generator.

***Determining the scope and contents of the prior art (MPEP § 2141.01)***

**Ojima et al** teach a process for producing alpha-pentafluoroalkyl acrylic acid, represented by the following reaction,



by contacting 2-bromo-3,3,4,4,5,5,5-heptafluoro-1-pentene, water, carbon monoxide and a base, viz., triethylamine, in presence of a palladium catalyst, [col. 10, lines 1-24].

***Ascertaining of the Differences Between Scope of the Prior art and the Claims***  
***(MPEP § 2141.012)***

The difference between the teaching of **Ojima et al** and the instant invention is that instant invention includes iodide anion in the reaction process, whereas **Ojima** is silent on addition of iodide anion in the reaction.

With regard to the iodine anion, **Rosa et al** teach a process for the carbonylation of ethylenically unsaturated compounds by reaction thereof with carbon monoxide and a coreactant in the presence of a group VIII metal cation and a halide anion, such as iodide anions [see Abstract and col.13, lines 1-3].

***Finding the Prima Facie Obviousness Rational and Motivation***  
***(MPEP § 2142-2143)***

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of **Ojima et al** and **Rosa et al** . One would be motivated to do this because **Ojima et al** teach the preparation of alpha-pentafluoroalkyl acrylic acid, and **Rosa et al** teach the use of iodide anion in the carbonylation reactions based on its greater promoting effect and the linearity of the

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carbonylation products. Therefore, one would combine the teachings of **Ojima et al** and **Rosa et al** in order to make fluorinated acrylic acid derivatives. For the foregoing reasons the instantly claimed compound and process of making it is made obvious.

### ***Double Patenting***

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

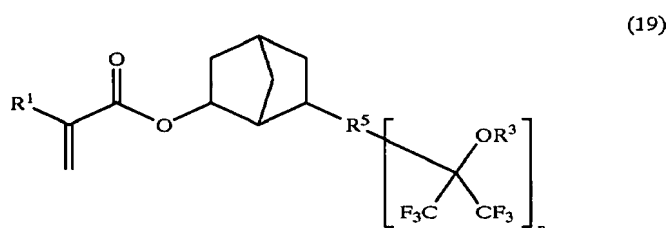
9. Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the claims 1-2, 4, 6, 7 and 9 of **US 6,784,312**.

Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons:



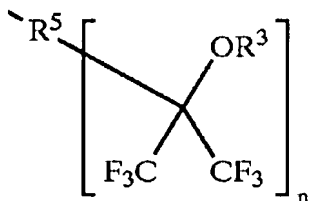
The instant claim is drawn to an alpha-pentafluoroethyl acrylic acid derivative, represented by the general formula I.

The **US 6,784,312** claims 1-2, 4, 6, 7 and 9 are drawn to a polymerization monomer represented by formula (19),



wherein R<sup>1</sup> is a hydrogen atom, a halogen, a hydrocarbon group or a fluorine-containing group; R<sup>3</sup> is a hydrogen atom, a hydrocarbon group that is optionally branched, a fluorine-containing alkyl group, or a cyclic group having an aromatic or alicyclic structure, said R<sup>3</sup> optionally containing an oxygen atom or carbonyl group; R<sup>5</sup> is a methylene group or a direct bond; and n is 1.

The difference between the instant claim and **US 6,784,312** is that the instant claim is drawn alpha-pentafluoroethyl acrylic acid derivative represented by formula (I), in which the alpha position is occupied by a pentafluoroethyl group, where as in **US 6,784,312**, it is represented by R<sup>1</sup> group (see above paragraph for the definitions). Another difference is that the R group in acid moiety in the instant claims represents a hydrogen atom or a straight or branched alkyl group having 1-20 carbon(s) which may have a cyclic moiety optionally substituted with at least one substituent (halogen atom, hydroxyl group, straight or branched alkoxy group having 1 to 10 carbon(s) which may have a cyclic moiety, non-substituted or substituted aromatic group), whereas in the copending application the group in the acid moiety is represented by



wherein R<sup>3</sup> is a hydrogen atom, a hydrocarbon group that is optionally branched, a fluorine-containing alkyl group, or a cyclic group having an aromatic or alicyclic structure, said R<sup>3</sup> optionally containing an oxygen atom or carbonyl group; R<sup>5</sup> is a methylene group or a direct bond; and n is 1.

It would have been obvious to one of ordinary skill in the art, at the time of invention was made, to start with the claims of copending application to make the instant applicants' compound with a reasonable expectation of success. The difference does not constitute a patentable distinct, because the present invention simply fall within the scope of the copending application. Because applicants' R "may have a cyclic moiety" attachment of the cyclic moiety directly to the ester's alcohol oxygen is not precluded.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not been patented yet.

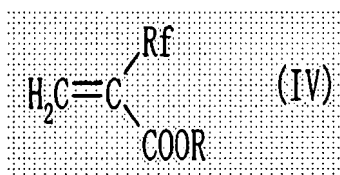
10. Claims 2-3 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the claims 1 and 2 of copending application **10/550,387** in view of **De Castro Loureiro Barreto Rosa et al** (US 6,103,927).

Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons:

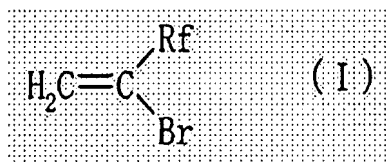
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The instant claims are drawn to a method of preparation of an alpha-pentafluoroethyl acrylic acid derivative, represented by the general formula I.

The copending application (**10/550,387**) claims are drawn to process for producing a fluorine-containing acrylic acid ester represented by the general formula (IV):



wherein, Rf represents a perfluoroalkyl group and R represents an unsubstituted or substituted alkyl group), characterized in that 1-bromo-1-perfluoroalkylethene represented by the general formula (I):



or

1,2-dibromo-1-perfluoroalkylethane represented by the general formula (II):



is allowed to react with ROH (R is defined above) in presence of a palladium catalyst, carbon monoxide, and a base and further limited the process by inclusion of inorganic base or inorganic salt.

The difference between the instant application and the copending application is that the instant application drawn to a method of preparation of a compound of formula

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I, which includes a iodide anion in the process, whereas copending application claims are drawn to a method of preparation of fluorine containing acrylic acid ester represented by formula IV. Another difference is that the copending application is silent on inclusion of iodide anion in the process, but it generically teaches the process in presence of inorganic salt.

With regard to the iodine anion, **Rosa et al** teach a process for the carbonylation of ethylenically unsaturated compounds by reaction thereof with carbon monoxide and a coreactant in the presence of a group VIII metal cation and a halide anion, such as iodide anions [see Abstract and col.13, lines 1-3].

It would have been a prima facie obvious to one of ordinary skill in the art, at the time of invention was made, to start with the claims of the copending application to make the instant applicants' process and to expect to make their product.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not been patented yet.

### **Conclusion**

11. No claim is allowed.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhakar Katakam whose telephone number is 571-272-9929. The examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SK



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